

## THE ELECTRICITY PRICES IN THE CZECH REPUBLIC

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### INTRODUCTION

The Czech electricity market was fully liberalised on 1 January 2006, when the last remaining customer category, households, became eligible to choose their supplier. Average gas and electricity prices for all customer segments in the Czech Republic are below the Europe-wide averages. The aim of this article was to analyse structure of energy price in CR.

### 1. DEVELOPMENT OF ENERGY PRICE

For gas, all customers with the exception of households became eligible on the same date, while choice of supplier has been extended to households as of 1 January 2007. Both markets remain highly concentrated and customer switching has been limited to date. In electricity, the transmission system operator has been established as a separate state-owned company and is fully ownership unbundled, while the distributors covering the largest part of the market have all carried out legal unbundling of their activities, but not ownership unbundling. In the gas sector, the transmission system operator has been legally unbundled, while the large gas distribution companies were to be legally unbundled by the end of 2006.

Energy prices in CR on the consumer market grew very dynamically, faster in the 2nd half of the 90s, more slowly in the years 2001 till 2006. The consumer prices of energy sources in 2006, based on the parity of purchasing power, given the average level of prices in the EU [8].

Development of energy prices was mainly due to growth in world oil prices. In the period 1995 to 2006 the price of oil has increased steadily. In 2006 the price of oil more than 3 times higher than in 1995. While between 1996 and 2000, oil prices increased on average by 10% per year between 2001 and 2006 the average growth rate of 14% of oil per year.

Energy prices on the consumer market grew between 1995 and 2006 very dynamically.

Electricity prices have increased 3.2x, 4.3x gas, thermal energy solid fuel 2.7x and 2.2x. The rise in energy prices have contributed to some extent the change in VAT rate from 5% to 19%.

|                   | 1996  | 2000  | 2003  | 2004  | 2005  | 2006  |
|-------------------|-------|-------|-------|-------|-------|-------|
| Electr.ener<br>g  | 111.0 | 229.4 | 274.1 | 279.7 | 290.7 | 316.9 |
| Gas from<br>netw. | 110.7 | 235.0 | 316.5 | 319.3 | 360.5 | 429.6 |
| Fuel              | 108.7 | 173.7 | 186.5 | 194.6 | 201.2 | 216.4 |
| Thermal<br>energy | 109.9 | 199.8 | 226.8 | 231.8 | 242.2 | 268.0 |

Figure 1. Price indices of consumer market, source CSU, update 8.03.12

International comparison of unit electricity prices paid by households in EU countries showed that CR belongs to a group of countries with above-average price. According to calculations by Eurostat, the average price of electricity for the EU 25 in 2006 14.2cents/kWh, in CR 16 cents/ kWh, and in the conversion under standard purchasing power parity (PPP). The countries with the highest electricity prices include Slovakia, Italy, Poland and Denmark, on the other hand, the lowest price available to residents in Britain, Finland, Norway and France. The highest share of taxes on consumer prices in Denmark have (58%), CR ranks among countries with a lower proportion than 20% of the total price. In an international comparison, which converted to Euro using the exchange rate market, the price level in the Czech Republic to the EU average, below average.

Electricity prices for industry in the EU have gone through several stages of development. From 1996 to 2000, decreasing thereafter in 2000-2004 showed a fluctuating development in 2005 and 2006 rose by 13%. CR gradually decreasing distance from the average energy prices in the EU expressed in euro. In 2006 the gap was only less than 2 cents per 1 kWh. A similar development took place at the cost of gas by the dynamic growth of prices in the CR occurred in 2006, and its distance from the average cost prices in the EU is already minimal.

It is clear from the graph 1 that the prices of electricity for industrial use have increased by 19.1% and for households by 52.3% since 2000.

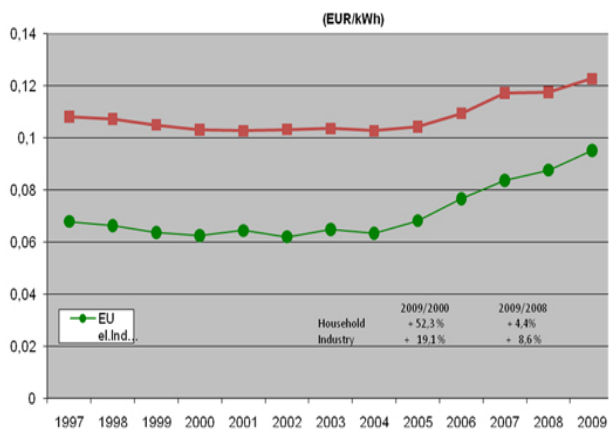


Figure 1. Electricity prices, source: EUROSTAT.

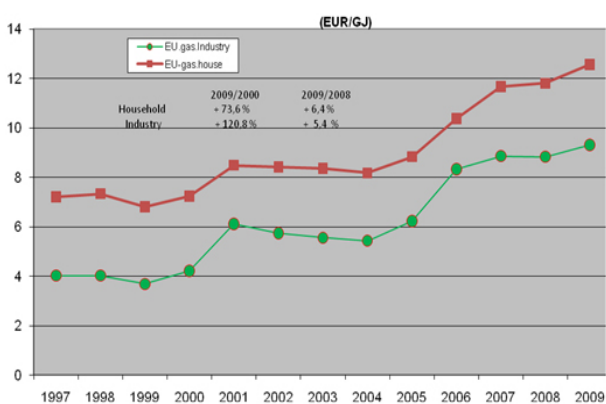


Figure 2. Development of natural gas prices, source: EUROSTAT

A similar picture emerges when we compare the development of electric energy and natural gas prices in the EU and in the Czech and Slovak Republics since 2004, i.e. from the date of our entry to the EU.

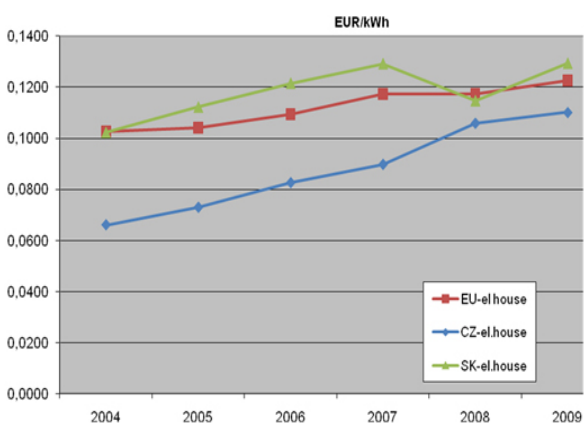


Figure 3. Development of electricity prices in the EU and in the Czech Republic and Slovak Republic since 2004, source: EUROSTAT

Within the same period, the prices of natural gas for industrial use increased by 120.8% and

those for households by 73.6% in the EU. The prices of natural gas thus show significantly higher growth dynamics than the prices of electricity.

It is clear from the graph that electricity prices have increased for households by 19.8% in the EU, 66.9% in the Czech Republic and by 26.3% in the Slovak Republic since 2004, while prices in the Czech Republic reached 90% and in Slovakia 105.4% of the prices in the EU in 2009.

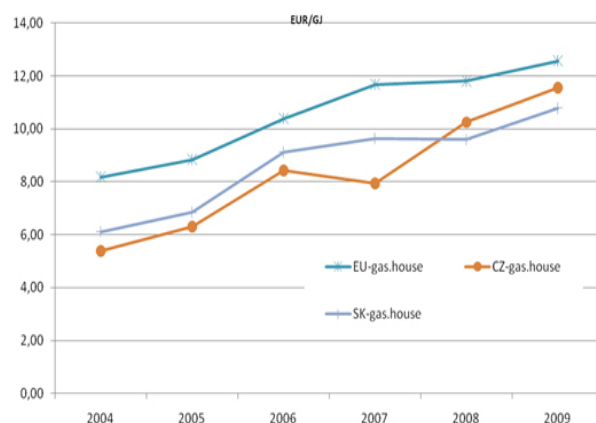


Figure 4. Development of natural gas prices in the EU, Czech Republic and Slovak Republic since 2004, source: EUROSTAT.

Natural gas prices for households increased by 53.6% in the EU, 114.6% in the Czech Republic and 76.3% in the Slovak Republic between 2004 and 2009.

From the presented data it is clear that:

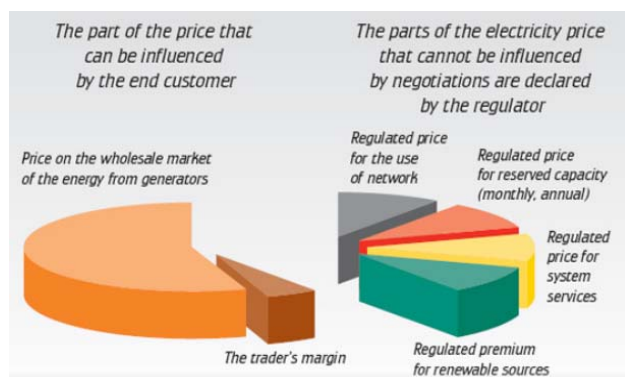
1. The dynamics of the growth in natural gas prices in the EU are significantly higher than those of the prices of electricity in the EU in the past 10 years (+73.6% , +52.3%).
2. In the last four years, natural gas prices for households have increased by 53.6% in the EU (114% in the Czech Republic and 76% in Slovakia), while electricity prices have grown by 19.8% in the same period (67% in the Czech Republic and 26% in Slovakia).

## 2. STRUCTURE OF ELECTRICITY PRICE

The resulting price of electricity supply to all categories of final customers is made up of several components. The first component prices are unregulated commodity price. Electrical energy force known as electricity, whose price is established based on market principles and in line with business strategies of individual electricity

suppliers. Other components include the price of a monopolistic nature of the regulated activity, including transport electricity from the generating plant through transmission and distribution system to the final customer, as well as activities related to ensuring a stable energy system from a technical point of view (the provision of system services) and commercially (primarily activities of the electricity market operator in the settlement of imbalances). The last component of the resulting price of electricity is the contribution to the promotion of electricity from renewable sources, combined heat and power generation and secondary sources. In this way the price of electricity supply made for all categories of customers with effect from 1 January 2006, when the Czech electricity market is fully liberalized.

Basic components of electricity prices are given in fig. 5 .



**Figure 5.** The structure of electricity prices [7]

#### Price of system services

This price covers the cost of the Code to purchase the support services (PPS), which are emergency power, which directly produces electricity for delivery to customers and "waiting in ambush on the order of dispatch." These resources work as established in the event of sudden power failure or other source of sudden load changes induced in the EC or take a step change in production and are necessary to ensure a balanced power-balance.

#### Prices for the service network - transmission services

Form of reserve capacity price for PS, the prices for network use PS. The final amount of allowed revenues have a significant effect of PPS revenue from the auction fund profiles on over the border, the effect is transferred to regulated prices. Determined the size of allowable losses, the price on the cover of losses and the size of the planned amount of electricity taken from the PS individual customers.

#### Price for use of distribution services

Consists of: an increase of prices for network use, affecting the variable component of tariffs for distribution, was caused by a dramatic increase in price of energy on the wholesale market, distribution companies that I buy to cover losses; variable costs determined from the losses and allowance prices electrical energy to cover losses, losses are determined by its degree of losses in the distribution services related to entering into the cell electricity distribution services in relative units; slip rate [%] is the sum of the rate determined by technical and commercial losses, relative to entering into the cell electricity distribution services.

#### Prices for the service network

Are the distribution services from a customer perspective on the surface nn have the following components:

- Price for the distribution of electricity for final customers

- Payment for the amount of electricity taken from [CZK/MWh], which primarily covers the costs of network losses, which are in direct proportion to electricity consumption, one with a variable component of the resulting price

- Payment for input according to the size of the circuit breaker (fixed cost), respects the fixed costs associated with vendor security of supply of electricity in a defined quality and in any moment, the costs associated with maintenance, restoration and development of ES, the cost of measurements made reading, etc.



**Figure 6.** Distribution companies in the CR [6].

#### Operator of Electricity Market

Trading commodity in one market place is natural, are shown in Fig.6 market operators in different countries of Europe. In CR's OTE offering traders the opportunity to trade electricity and gas within one portal and the use of joint financial risk-management and financial settlement.

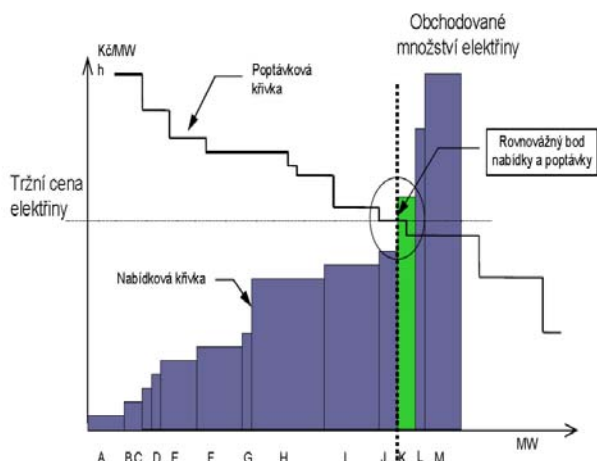


Figure 7. Graph formed prices EE [11].

| Produkt      | Cena [€/MWh] | Průměrný roční forwardový kurz na 2012 [€/€] | Cena 2012 [Kč/MWh] | Cena 2011 [Kč/MWh] | Změna ceny produktu 2012/2011 [%] |
|--------------|--------------|----------------------------------------------|--------------------|--------------------|-----------------------------------|
| EE BL CAL 12 | 56,08        | 24,64                                        | 1 381,81           | 1 255,20           | 10,09%                            |
| EE PL CAL 12 | 67,37        | 24,64                                        | 1 660,00           | 1 724,14           | -3,72%                            |

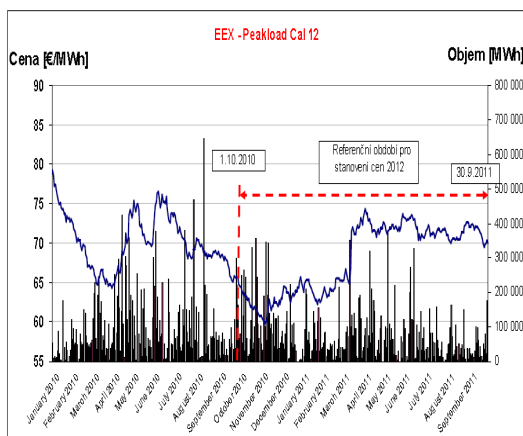


Figure 8. Development of electricity prices in the energy market (EEX) [11].

#### Prices for the decentration production of EE.

Support decentration of production is determined by sources connected to the lower voltage levels. Decentralized source reduces the cost of network losses and transition to the higher voltage úrovních. Výsledný contribution to end-users, decentration production rose due to the development of electricity from these sources.

## CONCLUSION

A European energy policy must pursue the objective of a sustainable, competitive and secure supply of energy.

At present, the energy system in the Czech Republic needs to decide some important issues regarding limited fossil resources, greater efficiency in producing of electrical energy and reducing

emission levels of pollutants, that will influence the energy prices in CR.

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